WHAT IS CLAIMED:

1. A sheet feeding apparatus, comprising:

a sheet feeding device configured to pick up sheets from stacked sheets and to feed the sheets one by one;

a drive device configured to drive the sheet feeding device;

a first detecting device configured to detect a sheet fed by the sheet feeding device to a first detection position located downstream of the sheet feeding device in a sheet feeding direction;

a second detecting device configured to detect the sheet fed by the sheet feeding device to a second detection position located downstream of the first detecting device in the sheet feeding direction; and

a control device configured to control sheet feeding while setting a drive amount of the drive device,

wherein the control device calculates a first drive amount of the drive device during a first interval from when the first detecting device detects the sheet to when the second detecting device detects the sheet based on information detected by the first and second detecting devices, and

wherein the control device determines if the sheet slips in the first interval based on the calculated first drive amount of the drive device, and sets a second drive amount of the drive

device during a second interval from when the second detecting device detects the sheet to when the drive device is stopped based on the calculated first drive amount.

2. The sheet feeding apparatus according to claim 1,

wherein the control device determines if the sheet has a tendency to slip based on a lapse of time from when the drive device is driven to when the first detecting device detects the sheet, and

wherein when the control device determines that the sheet has a tendency to slip, the control device calculates the first drive amount of the drive device, and sets the second drive amount of the drive device based on the calculated first drive amount.

3. The sheet feeding apparatus according to claim 1,

wherein each of the first and second drive amounts of the drive device is either a rotation number or a rotation time.

4. A sheet conveying apparatus, comprising:

a sheet feeding device configured to pick up sheets from stacked sheets and to feed the sheets one by one;

a drive device configured to drive the sheet feeding device;

a sheet conveying device configured to convey a sheet fed by the sheet feeding device to a predetermined position;

a first detecting device provided between the sheet feeding device and the sheet conveying device to detect the sheet fed by the sheet feeding device;

a second detecting device provided downstream of the first detecting device in a sheet feeding direction between the sheet feeding device and the sheet conveying device to detect the sheet fed by the sheet feeding device; and

a control device configured to control sheet feeding while setting a drive amount of the drive device,

wherein the control device calculates a first drive amount of the drive device during a first interval from when the first detecting device detects the sheet to when the second detecting device detects the sheet based on information detected by the first and second detecting devices, and

wherein the control device determines if the sheet slips in the first interval based on the calculated first drive amount of the drive device, and sets a second drive amount of the drive device during a second interval from when the second detecting device detects the sheet to when the drive device is stopped based on the calculated first drive amount.

5. The sheet conveying apparatus according to claim 4,

wherein the control device sets the second drive amount of the drive device such that the second drive amount is greater than

a drive amount of the drive device that drives the sheet feeding device to feed the sheet from the second detecting device to the sheet conveying device.

6. The sheet conveying apparatus according to claim 5,

wherein when the control device determines that the sheet slips in the first interval, the control device sets the second drive amount of the drive device while considering a possibility of a slip of the sheet between the second detecting device and the sheet conveying device.

7. The sheet conveying apparatus according to claim 6,

wherein the control device causes the second drive amount of the drive device to gradually decrease during the second interval such that the sheet abuts against the sheet conveying device while a sheet feeding speed gradually decreases.

8. The sheet conveying apparatus according to claim 4,

wherein the second detecting device is provided adjacent to the sheet conveying device.

9. The sheet conveying apparatus according to claim 4,

wherein the first and second detecting devices are arranged substantially in line in the sheet feeding direction.

10. The sheet conveying apparatus according to claim 4,

wherein the control device determines if the sheet reaches the second detecting device while comparing the calculated first drive amount with a predetermined value and detects a sheet jam based on a comparison result,

wherein the control device calculates a third drive amount of the drive device during a third interval from when the sheet feeding device starts feeding the sheet to when the first detecting device detects the sheet, and

wherein the control device determines if the sheet has slipped in the third interval while comparing the calculated third drive amount with a predetermined value, and changes reference values for detecting a sheet jam between a slipped sheet and a sheet that has not slipped.

11. The sheet conveying apparatus according to claim 4,

wherein the control device determines if the sheet has a tendency to slip based on a lapse of time from when the drive device is driven to when the first detecting device detects the sheet, and

wherein when the control device determines that the sheet has a tendency to slip, the control device calculates the first drive

amount of the drive device, and sets the second drive amount of the drive device based on the calculated first drive amount.

12. The sheet conveying apparatus according to claim 4, wherein each of the first and second drive amounts of the drive device is either a rotation number or a rotation time.

13. A sheet conveying apparatus, comprising:

a sheet feeding device configured to pick up sheets from stacked sheets and to feed the sheets one by one;

a drive device configured to drive the sheet feeding device;

a first detecting device configured to detect a sheet fed by the sheet feeding device to a first detection position located downstream of the sheet feeding device in a sheet feeding direction;

a second detecting device configured to detect the sheet fed by the sheet feeding device to a second detection position located downstream of the first detecting device in the sheet feeding direction;

a third detecting device configured to detect the sheet fed by the sheet feeding device to a third detection position located downstream of the second detecting device in the sheet feeding direction;

a sheet conveying device provided downstream of the third detecting device in the sheet feeding direction to convey the sheet fed by the sheet feeding device to a predetermined position; and

a control device configured to control sheet feeding while setting a drive amount of the drive device,

wherein the control device calculates a first drive amount of the drive device during a first interval from when the first detecting device detects the sheet to when the second detecting device detects the sheet based on information detected by the first and second detecting devices, and calculates a second drive amount of the drive device during a second interval from when the second detecting device detects the sheet to when the third detecting device detects the sheet based on information detected by the second and third detecting devices, and

wherein the control device sets a third drive amount of the drive device during a third interval from when the third detecting device detects the sheet to when the drive device is stopped based on a difference between the first drive amount and the second drive amount.

14. The sheet conveying apparatus according to claim 13, wherein each of the first, second, and third drive amounts of the drive device is either a rotation number or a rotation time.

15. An image reading apparatus, comprising:

a sheet feeding device configured to pick up original documents from stacked original documents and to feed the original documents one by one;

an image reading device configured to read an image of an original document at an image reading position;

a sheet conveying device configured to convey the original document fed by the sheet feeding device to the image reading position;

a drive device configured to drive the sheet feeding device;

a first detecting device provided between the sheet feeding device and the sheet conveying device to detect the original document fed by the sheet feeding device;

a second detecting device provided downstream of the first detecting device in an original document feeding direction between the sheet feeding device and the sheet conveying device to detect the original document fed by the sheet feeding device; and

a control device configured to control original document feeding while setting a drive amount of the drive device,

wherein the control device calculates a first drive amount of the drive device during a first interval from when the first detecting device detects the original document to when the second detecting device detects the original document based on

information detected by the first and second detecting devices, and

wherein the control device determines if the original document slips in the first interval based on the calculated first drive amount of the drive device, and sets a second drive amount of the drive device during a second interval from when the second detecting device detects the original document to when the drive device is stopped based on the calculated first drive amount.

16. The image reading apparatus according to claim 15,

wherein the control device sets the second drive amount of the drive device such that the second drive amount is greater than a drive amount of the drive device that drives the sheet feeding device to feed the original document from the second detecting device to the sheet conveying device.

17. The image reading apparatus according to claim 16,

wherein when the control device determines that the original document slips in the first interval, the control device sets the second drive amount of the drive device while considering a possibility of a slip of the original document between the second detecting device and the sheet conveying device.

18. The image reading apparatus according to claim 17,

wherein the control device causes the second drive amount of the drive device to gradually decrease during the second interval such that the original document abuts against the sheet conveying device while a sheet feeding speed gradually decreases.

19. The image reading apparatus according to claim 15,

wherein the second detecting device is provided adjacent to the sheet conveying device.

20. The image reading apparatus according to claim 15,

wherein the first and second detecting devices are arranged substantially in line in the original document feeding direction.

21. The image reading apparatus according to claim 15,

wherein the control device determines if the original document reaches the second detecting device while comparing the calculated first drive amount with a predetermined value and detects a sheet jam based on a comparison result,

wherein the control device calculates a third drive amount of the drive device during a third interval from when the sheet feeding device starts feeding the original document to when the first detecting device detects the original document, and

wherein the control device determines if the original document has slipped in the third interval while comparing the calculated third drive amount with a predetermined value, and changes reference values for detecting a sheet jam between a slipped original document and an original document that has not slipped.

22. The image reading apparatus according to claim 15,

wherein the control device determines if the original document has a tendency to slip based on a lapse of time from when the drive device is driven to when the first detecting device detects the original document, and

wherein when the control device determines that the original document has a tendency to slip, the control device calculates the first drive amount of the drive device, and sets the second drive amount of the drive device based on the calculated first drive amount.

23. The image reading apparatus according to claim 15,

wherein each of the first and second drive amounts of the drive device is either a rotation number or a rotation time.

24. A sheet feeding apparatus, comprising:

sheet feeding means for picking up sheets from stacked sheets and for feeding the sheets one by one;

drive means for driving the sheet feeding means;

first detecting means for detecting a sheet fed by the sheet feeding means to a first detection position located downstream of the sheet feeding means in a sheet feeding direction;

second detecting means for detecting the sheet fed by the sheet feeding means to a second detection position located downstream of the first detecting means in the sheet feeding direction; and

control means for controlling sheet feeding while setting a drive amount of the drive means,

wherein the control means calculates a first drive amount of the drive means during a first interval from when the first detecting means detects the sheet to when the second detecting means detects the sheet based on information detected by the first and second detecting means, and

wherein the control means determines if the sheet slips in the first interval based on the calculated first drive amount of the drive means, and sets a second drive amount of the drive means during a second interval from when the second detecting means detects the sheet to when the drive means is stopped based on the calculated first drive amount.

25. A sheet conveying apparatus, comprising:

sheet feeding means for picking up sheets from stacked sheets and for feeding the sheets one by one;

drive means for driving the sheet feeding means;

sheet conveying means for conveying a sheet fed by the sheet feeding means to a predetermined position;

first detecting means provided between the sheet feeding means and the sheet conveying means to detect the sheet fed by the sheet feeding means;

second detecting means provided downstream of the first detecting means in a sheet feeding direction between the sheet feeding means and the sheet conveying means to detect the sheet fed by the sheet feeding means; and

control means for controlling sheet feeding while setting a drive amount of the drive means,

wherein the control means calculates a first drive amount of the drive means during a first interval from when the first detecting means detects the sheet to when the second detecting means detects the sheet based on information detected by the first and second detecting means, and

wherein the control means determines if the sheet slips in the first interval based on the calculated first drive amount of the drive means, and sets a second drive amount of the drive means during a second interval from when the second detecting means

detects the sheet to when the drive means is stopped based on the calculated first drive amount.

26. A sheet conveying apparatus, comprising:

sheet feeding means for picking up sheets from stacked sheets and for feeding the sheets one by one;

drive means for driving the sheet feeding means;

first detecting means for detecting a sheet fed by the sheet feeding means to a first detection position located downstream of the sheet feeding means in a sheet feeding direction;

second detecting means for detecting the sheet fed by the sheet feeding means to a second detection position located downstream of the first detecting means in the sheet feeding direction;

third detecting means for detecting the sheet fed by the sheet feeding means to a third detection position located downstream of the second detecting means in the sheet feeding direction;

sheet conveying means provided downstream of the third detecting means in the sheet feeding direction to convey the sheet fed by the sheet feeding means to a predetermined position; and

control means for controlling sheet feeding while setting a drive amount of the drive means,

wherein the control means calculates a first drive amount of the drive means during a first interval from when the first detecting means detects the sheet to when the second detecting means detects the sheet based on information detected by the first and second detecting means, and calculates a second drive amount of the drive means during a second interval from when the second detecting means detects the sheet to when the third detecting means detects the sheet based on information detected by the second and third detecting means, and

wherein the control means sets a third drive amount of the drive means during a third interval from when the third detecting means detects the sheet to when the drive means is stopped based on a difference between the first drive amount and the second drive amount.

27. An image reading apparatus, comprising:

sheet feeding means for picking up original documents from stacked original documents and for feeding the original documents one by one;

image reading means for reading an image of an original document at an image reading position;

sheet conveying means for conveying the original document fed by the sheet feeding means to the image reading position;

drive means for driving the sheet feeding means;

first detecting means for detecting the original document fed by the sheet feeding means, the first detecting means being provided between the sheet feeding means and the sheet conveying means;

second detecting means for detecting the original document fed by the sheet feeding means, the second detecting means being provided downstream of the first detecting means in an original document feeding direction between the sheet feeding means and the sheet conveying means; and

control means for controlling original document feeding while setting a drive amount of the drive means,

wherein the control means calculates a first drive amount of the drive means during a first interval from when the first detecting means detects the original document to when the second detecting means detects the original document based on information detected by the first and second detecting means, and

wherein the control means determines if the original document slips in the first interval based on the calculated first drive amount of the drive means, and sets a second drive amount of the drive means during a second interval from when the second detecting means detects the original document and to when the drive means is stopped based on the calculated first drive amount.